

TATA STEEL



RoofDek case study

Peacehaven Wastewater Treatment Works

Client: Southern Water

Architect: Montgomery Watson Harza (MWH)

Main contractor: 4Delivery Consortium

Installation contractor: Prater Ltd

Tata Steel systems: RoofDek D100/C19 Profile

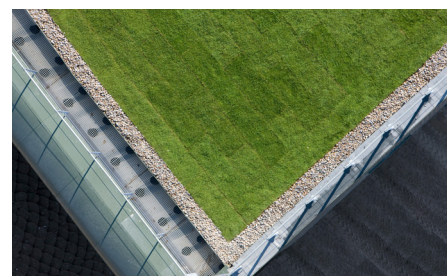
Colorcoat product: Double-sided
Colorcoat HPS200 Ultra®

Peacehaven Wastewater Treatment Works features the UK's largest green roof of its kind, covering an area of almost two and a half football pitches.

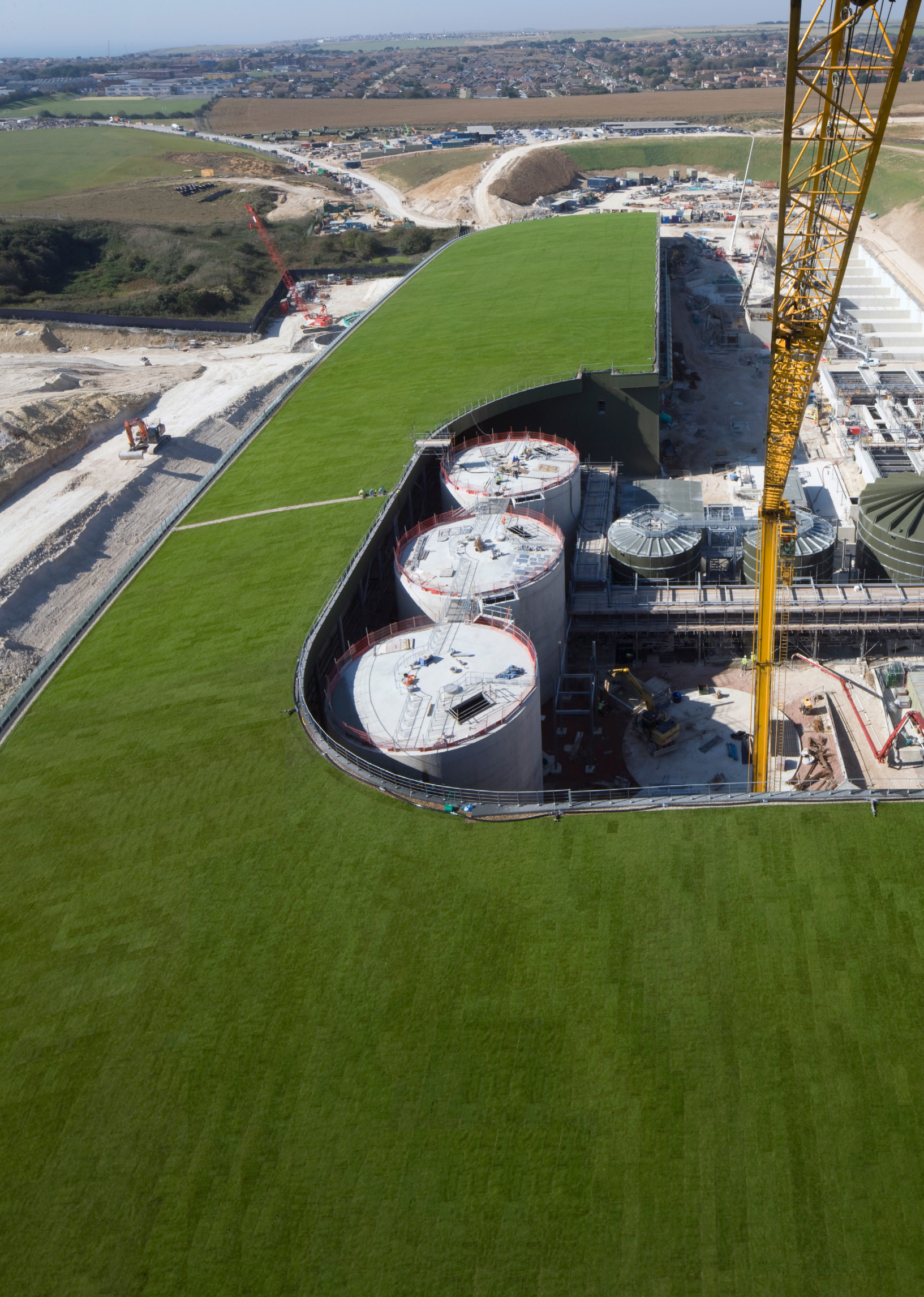
Southern Water's £300m, state-of-the-art wastewater treatment works will service the Brighton and Hove catchment area.

Works started in July 2009 and the scheme is on schedule for completion in March 2013.

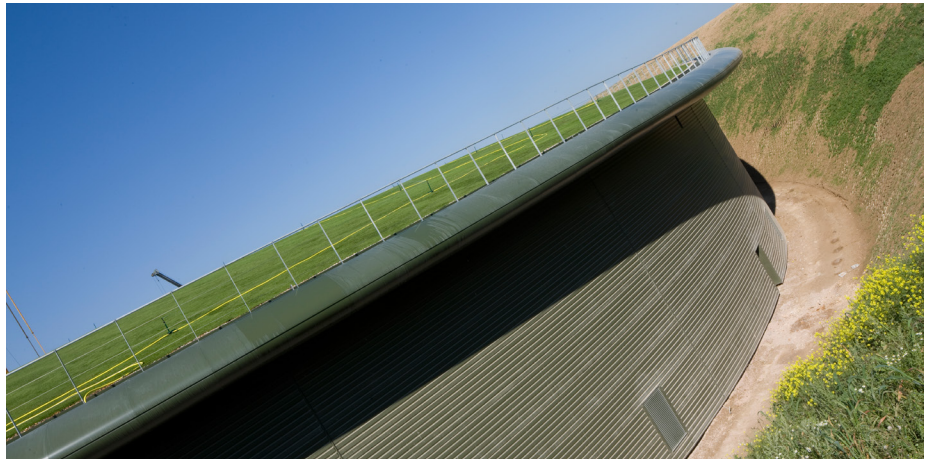
Installed by Prater, the roof features over 18,000m² of Tata Steel RoofDek D100 and the Tata Steel C19 profile on the walls, all in Olive Green, double-sided Colorcoat HPS200 Ultra®.



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“The plant has been designed to blend in with the landscape.”



Peacehaven Wastewater Treatment Works is part of a £300 million environmental improvement scheme. Located at Lower Hoddern Farm in Peacehaven, East Sussex, UK, once complete the works will treat 95 million litres (ML) of wastewater a day.

The facility was proposed by Southern Water, the utility provider for water supply and wastewater treatment services in south-eastern UK.

The plant has been designed to blend in with the landscape. It will treat wastewater generated from Brighton and Hove, Rottingdean, Saltdean, Telscombe, Woodingdean, Ovingdean and Peacehaven.

Work on the project began in July 2009. The plant is scheduled to be completed and fully operational by spring 2013.

The Peacehaven plant will ensure cleaner wastewater is released into the sea. It will have a pre-treatment facility that will remove oil, fat, grease and grit from wastewater.

The facility will have Multiflo lamella clarifiers for primary treatment and Biostyr biological aerated flooded filters (BAFF) for secondary treatment.

Treated water will be released 2.5km offshore at Friars Bay, meeting regulations on chemical oxygen demand and biochemical oxygen demand. Sludge will be treated to generate agricultural fertiliser.



Prater Ltd has installed the UK's largest green roof of its kind at a new wastewater treatment works in Peacehaven.

Covering 17,800m² - almost the equivalent of two and a half football pitches - the concept supported Southern Water in securing planning permission for the Peacehaven facility in East Sussex, following a decade of delays.

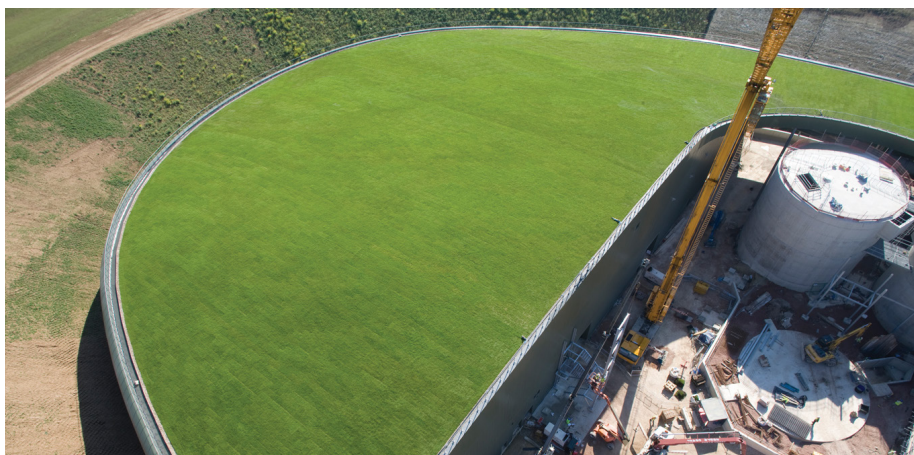
Southern Water and contractors 4Delivery (4D) put forward a revised design, incorporating the landscaped roof, which was officially approved by the Secretary of State in October 2008. Works started in July 2009 and the scheme is on schedule for completion in March 2013.

"Due to the level of investment that had already been made into the project throughout the ten years previous we needed a cost effective yet environmentally sound solution," said Phil Risbridger, Project Director of the 4D consortium, comprising of Costain, Veolia Water and MWH.

"The two don't tend to go hand in hand but Prater proposed a new system whereby we would build greenery onto a Tata Steel roof decking-based single ply roof, providing the cost and time benefits we needed, while staying true to the visual challenge of Southern Water's environmental improvement scheme."

The biggest challenge on-site was logistics in terms of transferring the thousands of tonnes of substrate onto the roof and covering the complete area using mobile tower cranes. To overcome this issue, a series of conveyor belts were used to transport the volume of material, which was then raked to follow the curve of the building.

"Peacehaven is a landmark project for us," says Prater's Project Manager, Paul Webb. "A green roof of this size and nature had never been attempted before and we needed to demonstrate that we could devise a system strong enough to hold the substrate."



The green roof has been installed over 18,000m² of Tata Steel RoofDek D100 in Olive Green double-sided 0.9mm Colorcoat HPS200 Ultra®.

Designed to accommodate the additional loadings imposed by green roof construction, RoofDek D100 features a 700mm cover width and a 233.3mm pitch that provides a very strong deck and offers excellent insulation support. Its lightweight construction also minimises the load on the building structure.

"The metal deck single ply structure with shear batten support overcame initial design concerns and by specifying a fully turfed landscape," explained Paul Webb.

"Rather than the standard sedum green roof - project leaders were able to convince planners of its ability to blend with the surrounding countryside."

Indeed, horticultural expertise was fundamental to a successful installation and the long-term viability of the green roof. To reflect the plant's natural surroundings, the seed mix was carefully chosen to react with the seasons in the same manner as the immediate landscape and there was significant planning to ensure the turf was established from the outset.

The turf was grown off site for 15 months in a controlled environment and lifted a maximum of 24 hours before installation to minimise the shock of transplantation. Moving forwards, the area will be strimmed to keep the loading at an optimum level and maintain a healthy turf.

Prater provided a total envelope solution for the project, including walls featuring the Tata Steel C19 profile in Olive Green 0.7mm double-sided Colorcoat HPS200 Ultra® in single and double skin configurations. Colorcoat HPS200 Ultra® is the most durable pre-finished steel on the market.

Based upon a revolutionary coating system, Colorcoat HPS200 Ultra® provides outstanding colour and gloss retention, and corrosion resistance even at the cut edge.

Double-sided Colorcoat HPS200 Ultra® is ideal for the demanding internal environment at Peacehaven Wastewater Treatment Works, where the same unique formulation topcoat and corrosion-resistant primer applied to the reverse side provides a robust barrier on both sides of the steel substrate.

The complete scheme involves the construction of a new wastewater treatment works, a sludge recycling centre and 11 km of sewer tunnel to transfer the wastewater to Peacehaven. A 2.5km outfall pipeline will release treated water into the sea.

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